

# The vocalisations of African black tits (*Parus niger* complex)

Simon Harrap

The taxonomy of the African black tits of the *Parus niger* complex is far from settled. For example, White<sup>17</sup>, Hall and Moreau<sup>10</sup> and Dowsett and Forbes-Watson<sup>7</sup> recognised four species (*niger*, *leucomelas*, *albiventris* and *leuconotus*). Sibley and Monroe<sup>12</sup> recognised five species (separating *guineensis* from *leucomelas*, but lumping *carpi*, which southern African authors had treated as a distinct species for several years, with *niger*), whilst Sibley and Monroe<sup>13</sup> stuck with five, but shifted *carpi* from *niger* to *leucomelas*. Most recently, I treated the complex as comprising six species (*niger*, *carpi*, *leucomelas*, *guineensis*, *albiventris* and *leuconotus*).<sup>11</sup>

The relationships within the complex, and thus the division of the various forms between the species, have largely been analysed using the traditional tools of the taxonomists. Data on morphology have been combined with the often limited and imprecise information on distribution to produce a best guess. More recently, information on vocalisations has been added to the equation, but largely in an anecdotal fashion.<sup>2,6</sup>

The distinctiveness of White-bellied Tit *P. albiventris* and White-backed Tit *P. leuconotus* has never been doubted. Both have clear morphological differences from the remaining members of the complex, which form the *niger* superspecies proper (I prefer to use the superspecies concept in its restricted form: that is to include forms that are allopatric or only very marginally sympatric). Debate has centred upon, firstly the separation of *leucomelas* (including *guineensis*) from *niger* (including *carpi*), secondly the separation of *carpi* from *niger*, and thirdly (and most recently), the separation of *guineensis* from *leucomelas*. All these taxa are rather similar in appearance, and it is not surprising that some taxonomists have lumped them all together as forms of 'Parus niger Black Tit'.

Data on distribution, morphology and vocalisations were used to justify the separation of *leucomelas* from *niger*<sup>1,2</sup> and similarly morphology and distribution led to the separation of *carpi* from *niger* by South African authors.<sup>4,5</sup> Sibley and Monroe were probably the first recent authors to split *guineensis* from *leucomelas*, noting the difference in eye colour (and also the reports of mixed-species flocks in Uganda which, in the event, are probably spurious).<sup>12</sup> Importantly how-

ever, Dowsett and Dowsett-Lemaire disputed the specific status of both *carpi* and *guineensis*, citing the similarity of the vocalisations of *carpi* to *niger*, but they advanced no arguments against the specific status of *guineensis*, other than the fact that 'people who live in East Africa have accepted without question in recent years that *guineensis* and *P. leucomelas* are conspecific' (indeed, their discussion of the whole complex is similarly rather polemical in tone).<sup>6</sup>

The purpose of this short note is to document a number of vocalisations for all the forms concerned, using both published and unpublished recordings. Unlike Dowsett and Dowsett-Lemaire<sup>6</sup>, however, I do not believe that vocalisations can, at present, be used convincingly in determining the relationships of these tits, for the following reasons.

1. In common with tits from the Holarctic and Oriental regions, African tits appear to have extremely large and complex vocabularies. Only a small selection of vocalisations is available on tape.
2. It is often difficult to determine the function of a particular vocalisation. In this respect, Dowsett and Dowsett-Lemaire state in their discussion of the vocalisations of the grey tit *P. afer* superspecies that 'As in several African tits with a variety of song-types, alarm calls are the most stable and species-specific vocalisations'.<sup>6</sup> I am unaware of any published work on any species of *Parus*, to justify this statement. Indeed, I would question their classification of the vocalisations that follow in their discussion as 'alarm calls', since this is just too broad a category. (In the discussion below, and purely for convenience, the more complex vocalisations are dubbed 'song'. This does not imply that there is any reason to believe that they fulfil the usual functions of song amongst passerines.)
3. The function of vocalisations in determining species limits in the Paridae is, as yet, very poorly understood. Closely similar, yet undeniably specifically distinct, tits may have song variants that are extremely similar (eg Marsh *P. palustris* and Willow *P. montanus* Tits). On the other hand, geographical representatives of what are acknowledged to be the same species may have quite distinct songs (eg Willow Tits from Europe, Siberia and Japan). Playback experiments may help to

resolve relationships, but these have to be conducted with some rigour, and only negative responses are likely to be significant. To my knowledge, noone has conducted playback experiments on the black tits.

In the following accounts, sonagrams were prepared on a Macintosh LC475 using Macromedia's SoundEdit<sup>16</sup>. Phonetic transcriptions are given below each sonagram, and largely refer to the transcriptions in the relevant species accounts in Harrap and Quinn<sup>11</sup>, although some additional material and interpretations are presented here, as sonographic analysis was not available to me when I was preparing the text for these species. Recorded material on the various short, mono-syllabic utterances of these tits was limited, and these have been largely ignored in the following discussion.



Southern Black Tit *Parus niger*  
Craig Robson

## 1. Southern Black Tit *Parus niger*

All recordings are taken from Gibbon, recorded by Guy Gibbon<sup>8</sup> at Vernon Crookes, Umzinto, Natal, and Gillard<sup>9</sup> recorded by Len Gillard, locality unknown.

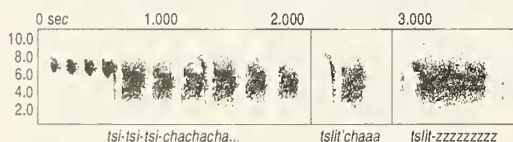


Fig 1

From Gibbon.<sup>8</sup> This is near a classic 'chick-a-dee' call system.

These calls are typical of many of the Paridae, and comprise one or more short, relatively high-frequency notes (dubbed 'A', 'B' and 'C' in the classic example, Black-capped Chickadee *P. atricapillus*), followed by a series of harsh, low frequency 'D' notes which characteristically show as a pattern of parallel horizontal bands on a sonagram.

In these examples the harsh, rasping *cha* notes (ie the D notes) do not show the banding structure typical of classic Ds, but the combinatorial construction of the call is absolutely typical of 'chick-a-dees'. The D notes may be given in prolonged series, and

may be preceded by either high-pitched *tsi* notes or a fuller and more abrupt *tslit*. In the example on the right, the D note is prolonged into an extremely harsh, rasping zzzzzzzz (see also Fig 9, below). Note that a series of D notes was presented by Dowsett and Dowsett-Lemaire<sup>6</sup> (Fig 10, p. 368) as the 'typical alarm-call' of Southern Black Tit, but in other species of *Parus* the 'chick-a-dee' call is a highly complex combinatorial system which may be used to convey many meanings. Indeed, in the Black-capped Chickadee, in which this type of vocalisation has been intensively studied, it is thought to be the only known system of combinatorial animal communication apart from human language.<sup>14</sup>

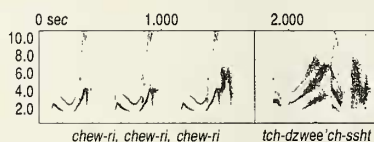


Fig 2

From Gibbon.<sup>8</sup> The sonagram of the first call (left), a whining *chew-ri*, given singly or in short series, is obscured towards the end by the 'chick-a-dee' calls of a second bird. The second call (right) is a nasal *tch-dzwee'ch-ssht* (see also Fig 12).

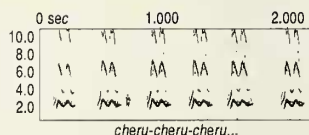


Fig 3

From Gibbon.<sup>8</sup> This mellow, slightly throaty call recalls in tone a bee-eater *Merops* sp. The repetition of a series of stereotyped notes such as this may be a 'song'.

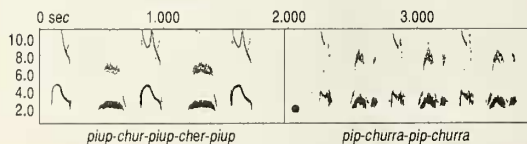


Fig 4

From Gillard.<sup>9</sup> Another possible song, on the 'tea-cher' pattern. The right hand figure sounds more complex, but is similarly a di-syllabic 'tea-cher' motif.

The 'tea-cher' pattern is named after a common rendition of the song of Great Tit *P. major*. It is the repetition of relatively simple, usually bi-syllabic motifs. Songs in this pattern are used by many parids, but especially by Great Tit and its allies. Notably, all the

African Tits are thought to be descended from an ancestral Great Tit.

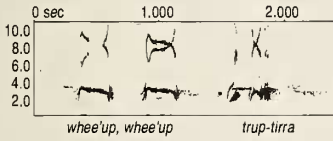


Fig 5

From Gillard.<sup>9</sup> A short but complex (and perhaps incomplete) phrase.

2. Carp's Tit *Parus carpi*

The only recordings available are from Gibbon<sup>8</sup>, recorded by Guy Gibbon at Khorixas and Hardap Dam, Namibia.

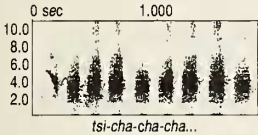


Fig 6

This harsh call was dubbed an 'alarm' call by Dowsett and Dowsett-Lemaire<sup>6</sup> (fig. 10, p. 368) and a 'chickadee' call in Harrap and Quinn.<sup>11</sup> Note that the harsh *cha* notes, which are repeated in series of up to 19 units, do not clearly show the characteristic banded structure of 'D' notes (although it would probably be more apparent with a higher quality recording and sonagram), but the construction of the whole phrase is typical of 'chick-a-dee' vocalisations. As noted by Dowsett and Dowsett-Lemaire, this call is very similar to the commonest call of Southern Black Tit (see Fig 1).

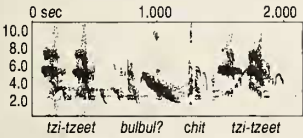


Fig 7

This complex of notes includes a typically harsh, tit-like *tsi-tzeet* and a single *chit* note. The melodic whistle sandwiched between these may be given by Carp's Tit (Gibbon notes 'Probably whistles as well.' in the annotations to the recording), or may be a bulbul (?). (Note that my own field notes on the vocalisations of Carp's Tit include a clear, whistled *piu-piu-piu-piu*, *witch-a, witch-a, witch-a...*, a squeaky, slurred *si-u, si-u, si-iu* and a bulbul-like *churia-churia-chura*.)

3. White-winged Tit *Parus leucomelas*

The only recordings available were kindly supplied by the National Sound Archive.

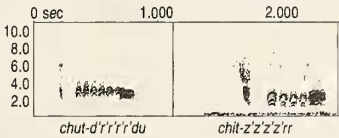


Fig 8

NSA No. 21389 (left), recorded by R. Stjernstedt at Lusaka in Zambia; NSA No. 37549 (right), recorded by Clide Carter at Ndola in Zambia. Both recordings include a series of 'chick-a-dee' calls, quite uniform in structure. In these examples, three note types are clearly distinguishable in the call. Note that the right-hand sonagram shows a call at a rather lower pitch, which may reflect an individual, sexual or dialectic difference, but also notable is the great similarity in the calls given by different birds in different localities.

The recording by R. Stjernstedt was published as Stjernstedt<sup>16</sup> and used by Dowsett and Dowsett-Lemaire<sup>6</sup> in the production of their Fig 10, p. 368. They dubbed it a 'typical alarm call' (see above under Southern Black Tit). Although sounding quite dissimilar to the 'chickadee' calls of Southern Black and Carp's Tit, this is a 'chickadee' call (contra Harrap and Quinn<sup>11</sup>) and is presumably analogous in function, if not sound, to those of Southern Black and Carp's Tit (and probably to those of all the black tits). The 'D' note is much shorter in duration than that illustrated for Southern Black Tit, and repeated more quickly, a difference similar to that shown by Marsh and Willow Tits in the Palearctic.



Fig 9

NSA No. 37549, recorded by Clide Carter at Ndola in Zambia. Perhaps a variant on the 'chick-a-dee' call type, being a combination of a short, high-pitched note and 1-2 low frequency notes. The extremely low-pitched, harsh scolding comprises notes which lack the banded structure typical of 'dee' notes (see also Fig 1 above, right-hand sonagram). The right-hand sonagram shows a more complex variant, comprising three note types.



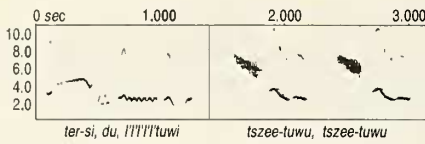


Fig 10

NSA No. 21390, recorded by R. Stjernstedt at Lusaka in Zambia. Both may be 'songs'. The left hand figure depicts a complex, rather sad whistled phrase, which recalls a lark or chat and is not at all tit-like (although it is somewhat similar in structure to the trilling song of Rufous-naped Tit *P. rufonuchalis* of Central Asia and the western Himalayas). The right hand Fig is a simpler, but nevertheless musical phrase, in the 'tea-cher' pattern.



#### 4. White-shouldered Tit *Parus guineensis*

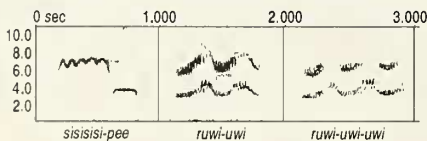


Fig 11

NSA No. 24902, recorded by Christopher Watson at Shai Hills, Ghana. Two calls are depicted, a typically tit-like, very thin, silvery *sisisi-pee* (with the 'pee' louder, fuller and more bell-like, again recalling certain vocalisations of Rufous-naped Tit) and a lower-pitched, slightly grating *ruwi-uwi*.

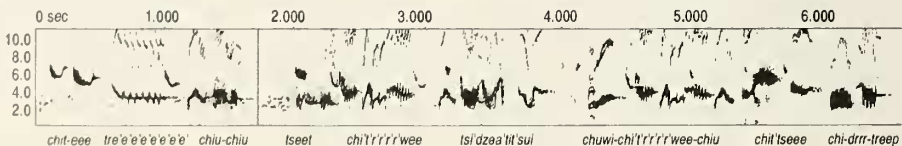


Fig 15 (below)

Recorded by Steve Smith in The Gambia (and published as Smith<sup>15</sup>). The nasal, rather finch-like rising *dzuwee*, sometimes combined with a similarly nasal *zee* note (the latter note with a banded structure and recalling a 'broken D', see Smith<sup>14</sup> and compare with Fig 2, right-hand sonagram). Perhaps in excitement or alarm, the *dzuwee* note is accelerated into a slightly higher-pitched, rapid crescendo (right).

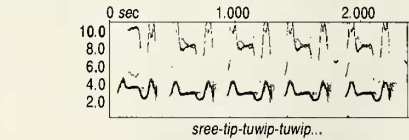


Fig 13

Recorded by Claude Chappuis in north Garoua, Cameroon (published as Chappuis<sup>3</sup>). This is a 'song' with a loud, ringing tone, in the 'tea-cher' pattern, although the sonagram reveals a rather complex structure (recalling some songs of Marsh Tit). Chappuis considered that such 'two-note' phrases were not typical of the species ('ne sont pas les plus courantes').

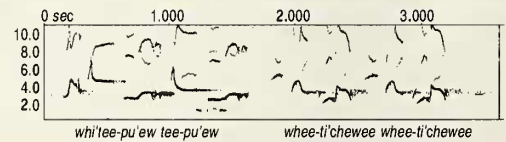


Fig 14

Recorded by Claude Chappuis at Bembéréké, Dahomey (published as Chappuis<sup>3</sup>). Presented by Chappuis as a more normal song of four notes, the sonagrams shows many similarities with the 'two-note' song above.

Recorded by Claude Chappuis at Jos, Nigeria (published as Chappuis<sup>3</sup>). Two sequences of extremely

complex vocalisations are shown ('chant en duo avec notes vibrées spécifiques'), the second cut a prolonged phrase repeated more or less identically several times on the recording. At first glance they are quite unlike the utterances of any Holarctic tit. I suspect, however, that these are elaborate 'gargles' and thus closely analogous to a class of vocalisation given by many of the tits in the sub-genus *Poecile*. Most intensively studied in the Black-capped Chickadee, gargles are complex phrases, given largely by males, in aggressive and sexual encounters, which sound like apparently random collections of very short musical notes jumbled together in rapid succession. A Palearctic equivalent is the 'nightingale song' given very occasionally by Willow Tits.

5. White-bellied Tit *Parus albiventris*

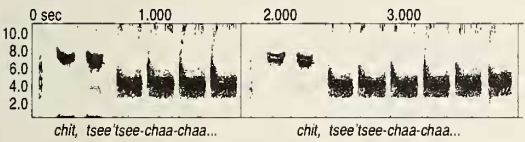


Fig 16

Recorded by Claude Chappuis and R. Stjernstedt at the Taita Hills, Kenya (published as Chappuis<sup>3</sup>). Typical 'chick-a-dee' phrase, with 4-6 'D' notes. In all six phrases on the recording the 'chick-a-dee' is introduced by a sharp, thin, *chik* note. Note the great similarity with the 'chick-a-dee' of Southern Black Tit (see Fig 1) but would Dowsett and Dowsett-Lemaire consider them conspecific, as they do Southern Black and Carp's Tits?

6. White-backed Tit *Parus leuconotus*



Fig 17

Recorded by Nik Borrow in Ethiopia. This stereotyped phrase, *tchu, plit-kli chu-eee'u*, where the *tchu* is a very sparrow-like note, was repeated with little variation, either singly or in couplets, for well over a minute, at c2 second intervals, and is most probably a 'song'. It recalls no Palearctic tit, but note that the sonagram reveals that the *tchu* notes have the banded structure of D notes (and hence this could be a modified 'chick-a-dee' call).

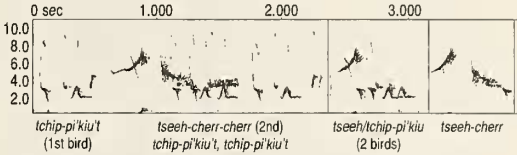
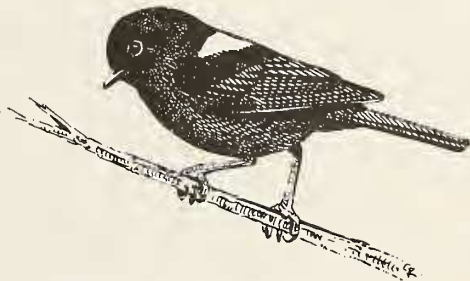


Fig 18

Recorded by Nik Borrow in Ethiopia. This recording involved at least two birds, one giving a rather mellow, bulbul-like 'song, repeated in short series 1-6 times, *tchip-pi'kiu't* (or *plit, tchiu-p'du...*), the other bird a 'chick-a-dee' call, with the initial note having a distinctive rising tone; this *tsee* note is also often given alone. These vocalisations are interspersed with the sparrow-like *tchu* notes (as in Fig 17).

It is clear that our knowledge of the vocalisations of the black tits is far from complete. The author would welcome copies of any recordings of these species, especially when accompanied by notes on the context and the number of birds involved (and any other species on the recordings).



White-backed Tit *Parus leuconotus*  
Craig Robson

Acknowledgements

Many thanks to Richard Ranft of the National South Archive for supplying copies of recordings held in the national collection, and to Nik Borrow for making a special and very successful effort on my behalf to record White-backed Tit. ☺

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